

REMARKS

I. Introduction

In response to the Office Action dated April 4, 2005, Applicants have added claims 31 and 32. Support for these amendments can be found, for example, at page 10, lines 11-13 and lines 16-20 of the specification. No new matter has been added.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art references.

II. Clarification of Record

In the pending Office Action, it is noted that claims 28-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Mikoshiba. However, as claims 28-30 are dependent upon claim 11, and claim 11 has not been rejected in view of Mikoshiba, Applicants respectfully submit that the rejection to claims 28-30 as being unpatentable over Mikoshiba is improper, and request the withdrawal thereof.

III. The Rejection Of Claim 11 Under 35 U.S.C. § 102

Claim 11 is rejected under 35 U.S.C. § 102(b) as being anticipated by USP No. 3,922,703 to Pankove. Applicants respectfully traverse this rejection for at least the following reasons.

Claim 11 recites in-part growing an epitaxial layer on a layered substrate, wherein the layered substrate comprises sapphire on silicon."

In the statement of rejection, it is asserted that Pankove discloses growing a layer of *silicon 12 on a sapphire substrate 16*, and an insulating gallium nitride layer thereon so that the device of Pankove contains a structure of GaN/Si/Sapphire. However, claim 11 recites growing an epitaxial

layer on a layered substrate comprising *sapphire on silicon* (i.e., epitaxial layer/Sapphire/Si).

Accordingly, it is clear that Pankove does not disclose or suggest “growing an epitaxial layer on a layered substrate, wherein the layered substrate comprises *sapphire on silicon*,” as embodied in claim 11.

As anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), and at a minimum, Pankove fails to disclose or suggest the foregoing claim elements, it is clear that Pankove does not anticipate claim 11 or any of the claims dependent thereon.

IV. The Rejection Of Claim 11 Under 35 U.S.C. § 102

Claim 11 is rejected under 35 U.S.C. §102(b) as being anticipated by USP No. 4,511,816 to Mikoshiba. Applicants respectfully traverse this rejection for at least the following reasons.

In the statement of rejection, it is alleged that Mikoshiba discloses “forming an AlN single crystal epitaxial film on a silicon on sapphire substrate.” However, as recognized but apparently overlooked in the pending Office Action, Mikoshiba discloses only that the AlN single crystal epitaxial film 2 is formed on the *silicon-on-sapphire* substrate 1 (i.e., AlN/Si/Sapphire) (see, page 3, lines 1-2 of Office Action), and does not disclose or suggest growing an epitaxial layer on a layered substrate comprising *sapphire on silicon* (i.e., epitaxial layer/Sapphire/Si). Accordingly, Mikoshiba does not disclose or suggest “growing an epitaxial layer on a layered substrate, wherein the layered substrate comprises *sapphire on silicon*,” as recited by claim 11.

As anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference,

Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), and at a minimum, Mikoshiba fails to disclose or suggest the foregoing claim elements, it is clear that Mikoshiba does not anticipate claim 11 or any of the claims dependent thereon.

V. **The Rejection Of Claims 11 and 24 Under 35 U.S.C. § 103**

Claims 11 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over USP No. 5,081,519 to Nishimura in view of USP No. 5,679,152 to Tischler. Applicants respectfully traverse this rejection for at least the following reasons.

In rejecting claim 11, the Examiner relies on the silicon-on-sapphire substrate of Nishimura so as to arrive at the claimed invention. However, once again, the rejection appears to overlook that the substrate of Nishimura is a silicon-on-sapphire substrate, and is not a sapphire-on-silicon substrate. Tischler does not cure this defect of Nishimura, because Tischler discloses only a silicon substrate or a sapphire substrate (see, col. 10, lines 33-37), and does not disclose or suggest a sapphire-on-silicon (i.e., silicon *and* sapphire) substrate. Based upon the foregoing, it should be apparent that even if the applied references are combined, the combination fails to disclose the claimed invention.

Accordingly, as each and every limitation must be either disclosed or suggested by the cited prior art in order to establish a *prima facie* case of obviousness (see, M.P.E.P. § 2143.03), and Nishimura and Tischler, taken alone or in combination, fail to do so, it is respectfully submitted that claim 11 is patentable over the cited prior art.

VI. The Rejection Of Claims 11 and 24-25 Under 35 U.S.C. § 103

Claims 11 and 24-25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nishimura in view of USP No. 6,086,673 to Molnar. However, as Nishimura is also relied upon to reject claims 11 and 24-25, it is respectfully submitted that claims 11 and 24-25 are patentable over the cited prior art for at least the same reasons discussed above with respect to the rejection applied to claims 11 and 24 in view of Nishimura and Tischler. Also, it should be noted that Molnar does not cure the defect of Nishimura, because the substrate of Molnar is only a sapphire substrate *or a* silicon carbide substrate (see, col. 3, lines 61-62).

VII. All Dependent Claims Are Allowable Because The Independent Claims From Which They Depend Are Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as independent claim 11 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also in condition for allowance.

VIII. Conclusion

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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WDC99 1104449-1.053074.0026